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NEWS 13 MAR 22 REGISTRY/ZREGISTRY enhanced with experimental property tags

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FILE COVERS 1907 - 31 Mar 2005 VOL 142 ISS 14
FILE LAST UPDATED: 30 Mar 2005 (20050330/ED)

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=> s hydrogenolysis
24766 HYDROGENOLYSIS
105 HYDROGENOLYSES
L1 24786 HYDROGENOLYSIS
(HYDROGENOLYSIS OR HYDROGENOLYSES)

=> s l1 and (activat? or regenerat? or deactivat?)
1180818 ACTIVAT?
164966 REGENERAT?
37965 DEACTIVAT?
L2 1733 L1 AND (ACTIVAT? OR REGENERAT? OR DEACTIVAT?)

=> s l2 and hydrogen (l) carbon monoxide
862250 HYDROGEN
5533 HYDROGENS
865359 HYDROGEN
(HYDROGEN OR HYDROGENS)
1110332 CARBON
24692 CARBONS
1119341 CARBON
(CARBON OR CARBONS)
165237 MONOXIDE
970 MONOXIDES
165751 MONOXIDE
(MONOXIDE OR MONOXIDES)
139793 CARBON MONOXIDE
(CARBON(W)MONOXIDE)
16415 HYDROGEN (L) CARBON MONOXIDE
L3 15 L2 AND HYDROGEN (L) CARBON MONOXIDE

=> d l3 ibib ab 1-15

L3 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:267277 CAPLUS
DOCUMENT NUMBER: 140:273354
TITLE: In-situ reduction of metal oxide Fischer-Tropsch
catalyst precursors with **hydrogen** and
carbon monoxide co-feed
INVENTOR(S): Raje, Ajoy P.
PATENT ASSIGNEE(S): Conocophillips Company, USA
SOURCE: PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004026796	A2	20040401	WO 2003-US29640	20030922
WO 2004026796	A3	20040812		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE,

GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,
 LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ,
 OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
 TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW
 RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
 KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES,
 FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR,
 BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2004127585 A1 20040701 US 2003-667637 20030922

PRIORITY APPLN. INFO.: US 2002-412598P P 20020920

AB In-situ reduction and **activation** of a Fischer-Tropsch catalyst precursor slurry prior to the hydrocarbon synthesis reaction is carried out in the presence of **hydrogen** and small amts. (<5000 ppm, preferably <2000 ppm) of **carbon monoxide** co-feed at 250-400° (preferably 350-400°). As the metal oxide precursor reduces to the active Fischer-Tropsch metal (i.e., promoted cobalt), the **carbon monoxide** acts as a poison to reduce **hydrogenolysis** activity, thus reducing the loss of liquid product from the reaction and reduces production of methane.

L3 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:685813 CAPLUS

DOCUMENT NUMBER: 138:40965

TITLE: One-step synthesis of methanol from CO/H₂ at low temperature over ultrafine CuB catalysts

AUTHOR(S): Chen, Yin-Zu; Liaw, Bing-Jye; Chen, Bih-Jen

CORPORATE SOURCE: Department of Chemical Engineering, National Central University, Chung-Li, 32045, Taiwan

SOURCE: Applied Catalysis, A: General (2002), 236(1-2), 121-128

CODEN: ACAGE4; ISSN: 0926-860X

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Ultrafine catalysts of CuB and Me-CuB (Me - metal catalyst promoter) were prepared by chemical reduction, examined for **hydrogenolysis**, and co-used with potassium methoxide for both carbonylation and one-step synthesis of methanol from CO/H₂ at low temperature. Doping with Th and Cr additives enhanced the stability and dispersion of copper in the resulting catalysts, Th-CuB and Cr-CuB, and promoted the **hydrogenolysis** of Me formate. The Th-CuB and Cr-CuB catalysts, co-used with potassium methoxide, prevented the **deactivation** of potassium methoxide in carbonylation and in one-step synthesis of methanol. A higher temperature favored the **hydrogenolysis** of Me formate, but limited the formation of Me formate by carbonylation. A higher PCO facilitated the formation of Me formate, but inhibited the **hydrogenolysis** of Me formate. A trade-off between temperature and PCO must be made in the one-step synthesis of methanol, including carbonylation and subsequent **hydrogenolysis**. The optimal temperature was around 423 K. A higher PCO was employed to overcome the limitation of Me formate formation. An accompanying rise in PH₂ (H₂/CO≥2) was required to weaken the inhibitory effect of CO on the Cu-based catalysts during the subsequent **hydrogenolysis** of Me formate.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:649024 CAPLUS

DOCUMENT NUMBER: 129:307057

TITLE: The role of step atom density on the binding and reaction of surface species

AUTHOR(S): Ford, L. P.; Nigg, H. L.; Blowers, P.; Masel, R. I.

CORPORATE SOURCE: Department of Chemical Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA

SOURCE: Journal of Catalysis (1998), 179(1), 163-170

CODEN: JCTLA5; ISSN: 0021-9517

PUBLISHER: Academic Press

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Temperature-programmed desorption was used to examine the adsorption and reaction of CO, H₂, O₂, NO, CH₃OH, and C₂H₄ on several surfaces of platinum to see if there is a correlation between the atom d. of step atoms and reactivity. Small variations in the desorption **activation energy of hydrogen, oxygen, carbon monoxide**, ethylene, and methanol were found the changing crystal face. However, on platinum surfaces, there was no correlation between the desorption **activation energy** and the step atom d. Reactivity was found to vary greatly with the crystal face. However, no correlation was found between the step atom d. and the reactivity for the **hydrogenolysis** of ethylene to methane, for the decomposition of methanol to **carbon monoxide**, for the **hydrogenolysis** of methanol to methane, for the oxidation of methanol to carbon dioxide, for the oxidation of methanol to formaldehyde, or for the decomposition of nitric oxide to nitrogen and oxygen. Only for the self-hydrogenation of ethylene to ethane on platinum surfaces did the reactivity have any correlation with step atom d., and this correlation did not carry through to steady-state expts. From our study, it appears that the active site for reaction is often not simply a step site. Rather, the active site consists of a special arrangement of step and terrace atoms that are aligned correctly to produce high reactivity. (c) 1998 Academic Press.

REFERENCE COUNT: 50 THERE ARE 50 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:191871 CAPLUS

DOCUMENT NUMBER: 129:8923

TITLE: High-temperature adsorption of carbon monoxide and hydrocarbon gases over nickel and platinum catalysts

AUTHOR(S): Jackson, David S.; Hussain, Naseem; Munro, Shona

CORPORATE SOURCE: ICI Katalco Research and Technology, TS23 1LB, UK

SOURCE: Journal of the Chemical Society, Faraday Transactions (1998), 94(7), 955-961

CODEN: JCFTEV; ISSN: 0956-5000

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The high-temperature (573 K) adsorption of ethene, propene, propyne, **carbon monoxide**, and the high temperature co-adsorption of propyne-**carbon monoxide** have been studied over Pt/alumina and Ni/silica catalysts. The Pt catalyst was found to retain **hydrogen** from the reduction process, this **hydrogen** being released by ethene adsorption at 573 K, whereas when propene was adsorbed on the Pt catalyst no **hydrogen** was liberated, indicating that the adsorption of propene did not affect the surface in the same manner as that of ethene. Equally, the deposit formed from ethene and propene adsorption, on the Pt catalyst, is not the same in nature or reactivity. However, the deposits formed from both propene and ethene adsorption on the Ni catalyst were very similar in nature and reactivity. Propyne adsorption on the Pt catalyst was examined by FTIR and revealed a totally different surface species than that derived from alkene adsorption. In general it was found that, with the Ni system, **regeneration** of adsorptive capacity could be achieved to some extent (dependent upon the gas being adsorbed) by treatment with dihydrogen at 573 K, whereas such a treatment of the platinum catalyst had no obvious effect. Coadsorption studies revealed that single adsorption behavior was not reproduced in the presence of a second adsorbing gas. The extent of adsorption and the nature of the deposit from propyne on the Pt system was modified, even though no **carbon monoxide** adsorption was detected, while on the Ni system, although **carbon monoxide** was adsorbed, the propyne adsorption was similar to that found in the absence of **carbon monoxide**.

REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:425741 CAPLUS
DOCUMENT, NUMBER: 117:25741
TITLE: Rhodium-ceria interaction induced by high-temperature reduction: characterization and catalytic behavior in transient and continuous conditions
AUTHOR(S): Trovarelli, Alessandro; Dolcetti, Giuliano; De Leitenburg, Carla; Kaspar, Jan; Finetti, Paola; Santoni, Antonino
CORPORATE SOURCE: Ist. Chim., Univ. Udine, Udine, 33100, Italy
SOURCE: Journal of the Chemical Society, Faraday Transactions (1992), 88(9), 1311-19
CODEN: JCFTEV; ISSN: 0956-5000
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The effects of the high-temperature reduction of Rh/CeO₂ catalyst on the hydrogenation of CO, CO₂, acetone and ethene, and on the **hydrogenolysis** of ethane, in transient and continuous conditions, have been investigated. The high-temperature reduction (HTR) at 773 K induced a transient Rh-CeO₂ interaction in the catalyst which enhances the rate of CO, CO₂ and acetone hydrogenation. Temperature-programmed reduction and XPS show the reduction of Ce⁴⁺ to Ce³⁺ after HTR in the near surface layers. The oxygen vacancies on the support (i.e., presence of Ce³⁺) can interact with the CO moiety promoting its **activation**.

L3 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:235669 CAPLUS
DOCUMENT NUMBER: 116:235669
TITLE: Synthesis and reactivity of compounds containing ruthenium-carbon, -nitrogen, and -oxygen bonds
AUTHOR(S): Hartwig, J. F.
CORPORATE SOURCE: Lawrence Berkeley Lab., Berkeley, CA, USA
SOURCE: Report (1990), LBL-30200; Order No. DE91014229, 417 pp. Avail.: NTIS
From: Energy Res. Abstr. 1991, 16(9), Abstr. No. 23685
Report; General Review
DOCUMENT TYPE: Report; General Review
LANGUAGE: English
AB The products and mechanisms of the thermal reactions of several (PMe₃)₄Ru(X)(Z) and (DMPM)₂Ru(X)(Z) [X and Z are hydride, aryl, and benzyl groups; DMPM = bis(dimethylphosphino)methane] have been investigated. The mechanism of decomposition depends critically on the structure of the complex and the medium in which the thermolysis is carried out. The alkyl hydride complexes do not react with alkane solvent, but undergo C-H **activation** processes with aromatic solvents by several different mechanisms. Thermolysis of (PMe₃)₄Ru(Ph)(Me) or (PMe₃)Ru(Ph)₂ leads to the ruthenium benzyne complex (PMe₃)₄Ru(η^2 -C₆H₄) by a mechanism which involves reversible dissociation of phosphine. In many ways its chemical is analogous to that of early rather than late organotransition metal complexes. The synthesis, structure, variable temperature NMR spectroscopy and reactivity of Ru complexes containing aryl oxide or arylamide ligands are reported. These complexes undergo cleavage of a P-C bond in coordinated trimethylphosphine, insertion of CO and CO₂ and **hydrogenolysis**. Mechanistic studies on these reactions are described. The generation of a series of reactive Ru complexes (PMe₃)₄Ru(R)(enolate) is reported. Most of these enolates bind to the Ru center through the O atom. Two of the enolate complexes exist in equilibrium between the O- and C-bound forms. The reactions of these compounds are reported, including reactions to form oxygen-containing metallacycles. The structure and reactivity of these Ru metallacycles is reported, including their thermal chemical and reactivity toward protic acids, electrophiles, **carbon monoxide**, **hydrogen** and trimethylsilane.

L3 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1992:109793 CAPLUS
DOCUMENT NUMBER: 116:109793
TITLE: Molecular approaches in heterogeneous catalysis
ship-in-bottle synthesis of zeolite-entrapped metal/alloy clusters: their structures and catalysis in **carbon monoxide** +

hydrogen reaction and ethane

hydrogenolysis

AUTHOR(S): Ichikawa, Masaru; Rao, Ling Fen; Fukuoka, Atsushi
CORPORATE SOURCE: Catal. Res. Cent., Hokkaido Univ., Sapporo, 060, Japan
SOURCE: Catal. Sci. Technol., Proc. Tokyo Conf., 1st (1991),
Meeting Date 1990, 111-16. Editor(s): Yoshida,
Satohiro; Takezawa, Nobutsune; Ono, Tetsuji.
Kodansha: Tokyo, Japan.

CODEN: 57NBAC

DOCUMENT TYPE: Conference

LANGUAGE: English

AB Hexanuclear Rh-Ir and Rh-Fe bimetallic carbonyl clusters inside NaY zeolite were prepared by the ship-in-bottle technique and characterized (as the H-reduced alloy clusters by EXAFS and Moessbauer spectroscopies, Fourier-transform IR spectroscopy, and CO hydrogenation and C₂H₆ hydrogenolysis activities. The reduced catalysts, of mol. formulas Rh₆-xIr_x/NaY and Rh₄Fe₂/NaY and prepared from precursors [Rh₆-xIr_x(CO)₁₆]/NaY and [Rh₄Fe₂(CO)₁₆]₂-/NaY, are tailored metal catalysts containing phys. isolated reduced alloy clusters and uniform metal compns. The Rh-Ir catalysts, active for C₂H₆ hydrogenolysis and yield C₂-4 olefins from CO hydrogenation, exhibit a strong structure-sensitivity, depending on Rh-Ir composition. The Rh-Fe catalysts yield C₁-2-alcs. from CO hydrogenation, which is attributed to a 2-site CO activation on adjacent Rh-Fe₃⁺ at the cluster-support interface to promote CO insertion.

L3 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:61491 CAPLUS

DOCUMENT NUMBER: 114:61491

TITLE: Catalysis by molybdenum carbide in activation
of carbon-carbon, carbon-oxygen and carbon-hydrogen
bonds

AUTHOR(S): Lee, Jae S.; Yeom, Mi H.; Lee, D. S.

CORPORATE SOURCE: Dep. Chem. Eng., Pohang Inst. Sci. Technol., Pohang,
S. Korea

SOURCE: Journal of Molecular Catalysis (1990), 62(3), L45-L51
CODEN: JMCADS; ISSN: 0304-5102

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Hydrolysis of n-butane and the reaction of CO with H₂ for activating C-C, C-O, and C-H bond, over Mo, Mo₂C, or Ru supported on Al₂O₃ as catalysts were studied. C₁, C₂, C₃, and i-C₄ product distribution by hydrogenolysis of butane and the turnover rate based on surface metal atoms titrated by CO chemisorption at room temperature is discussed.

L3 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1991:12831 CAPLUS

DOCUMENT NUMBER: 114:12831

TITLE: Platinum particles from the platinum carbonyl
(Pt₁₅(CO)₃₀₂-) cluster compound

AUTHOR(S): Handy, B. E.; Dumesic, J. A.; Langer, S. H.

CORPORATE SOURCE: Dep. Chem. Eng., Univ. Wisconsin, Madison, WI, 53706,
USA

SOURCE: Journal of Catalysis (1990), 126(1), 73-86

CODEN: JCTLA5; ISSN: 0021-9517

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Highly dispersed Pt particles were prepared by the pyrolysis of Pt₁₅(CO)₃₀₂- on hydroxylated and dehydroxylated, high surface area γ-Al₂O₃. Metal carbonyl decomposition was monitored by IR spectroscopy, transmission electron microscopy, and H and CO chemisorption expts. The catalytic properties of these materials were examined for isomerization and hydrogenolysis of neopentane at 523-623 K and 1 atm pressure. The metal carbonyl cluster is weakly adsorbed on initial contact with the Al₂O₃ surface, showing CO stretching bands characteristic of the original cluster mol. After several days of contact, or upon heating, the cluster rearranges to a more bulk-like Pt form. The original cluster compound

cannot subsequently be **regenerated** with exposure to CO or mild reduction treatment. Metal particles originating from the Pt15 cluster are highly dispersed. Preliminary neopentane reaction studies show high selectivity for **hydrogenolysis**, following treatment in H at 620 K, consistent with the selectivity of highly dispersed Pt catalysts. Following reduction at 1070 K, the selectivity shifted to favor isomerization. Since electron microscopy results indicated minor particle sintering, the selectivity change may be attributed to surface annealing of the defect crystallite structures from the initial cluster at the higher reduction temperature

L3 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1988:492086 CAPLUS

DOCUMENT NUMBER: 109:92086

TITLE: Structure-sensitive **deactivation** of supported palladium catalysts: carbon monoxide poisoning of methylcyclopropane **hydrogenolysis**

AUTHOR(S): Joyal, C. L. M.; Butt, J. B.

CORPORATE SOURCE: Dep. Chem. Eng., Northwestern Univ., Evanston, IL, 60201, USA

SOURCE: Studies in Surface Science and Catalysis (1987), 34(Catal. Deact.), 545-52

CODEN: SSCTDM; ISSN: 0167-2991

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The **hydrogenolysis** of methylcyclopropane has been used as a probe reaction to investigate the structure sensitivity of the **deactivation** of well-characterized Pd/SiO₂ catalysts by CO. Catalysts ranging from 5 to 75% metal exposed have been characterized as to CO and H₂ chemisorption, and the **hydrogenolysis** turnover frequency determined at 298° as a function of CO coverage and % exposed. CO chemisorption is structure sensitive on the lower-percentage-exposed materials, and relatively low levels of CO on the catalyst alter the structure sensitivity of the **hydrogenolysis** reaction.

L3 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1987:155702 CAPLUS

DOCUMENT NUMBER: 106:155702

TITLE: Rhodium/silica: catalyst characterization and study of the **hydrogenolysis** of methylcyclopropane

AUTHOR(S): Karpinski, Z.; Chuang, T. K.; Katsuzawa, H.; Butt, J. B.; Burwell, R. L., Jr.; Cohen, J. B.

CORPORATE SOURCE: Ipatieff Lab., Northwest. Univ., Evanston, IL, 60201, USA

SOURCE: Journal of Catalysis (1986), 99(1), 184-97

CODEN: JCTLA5; ISSN: 0021-9517

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The adsorption of H, CO, and O and x-ray line profile anal. were investigated on a series of Rh/SiO₂ catalysts made by ion exchange with Rh(NH₃)₅(H₂O)₃⁺ and by impregnation with Rh₄(CO)₁₂ and Rh₆(CO)₁₆. The percentage exposed (Dh) of the series of catalysts as measured by H chemisorption at 25° varied from 11 to 108%. Ease of reduction of the oxidized catalysts decreased as Dh increased and reduction in H was incomplete in H at 25° except for the catalysts of smallest Dh. The rates of **hydrogenolysis** of methylcyclopropane at 0° decreased with increasing Dh by a factor of .apprx.9 over the range of Dh of the series of catalysts for pretreated catalysts. The **activation** energy for **hydrogenolysis** was .apprx.37 kJ/mol. The ratio of isobutane to butane in the products was .apprx.20 for Dh = 11%, declined rapidly with increasing Dh, and became .apprx.3.5 for Dh > 50%. Pretreatment conditions had little effect on the ratio.

L3 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:540584 CAPLUS

DOCUMENT NUMBER: 105:140584

TITLE: Catalysis by supported metal clusters derived from H₄Os₄(CO)₁₂

AUTHOR(S): Hunt, D. J.; Moyes, R. B.; Wells, P. B.; Jackson, S.

D.; Whyman, R.
CORPORATE SOURCE: Dep. Chem., Univ. Hull, Hull, HU6 7RX, UK
SOURCE: Int. Congr. Catal., [Proc.], 8th (1984), Volume 5,
V27-V38. Verlag Chemie: Weinheim, Fed. Rep. Ger.
CODEN: 55DBAG
DOCUMENT TYPE: Conference
LANGUAGE: English

AB H4Os4(CO)12 was impregnated onto Al2O3, SiO2, and TiO2 and rendered catalytically active by thermal **activation**. The mol. integrity of H4Os4(CO)12 was retained on impregnation and a clustered state was retained during **activation**. Os clusters in the **activated** materials are stabilized by CO ligands and by an electronic support-cluster interaction, each of which contributes to the inhibition of sintering. The **activated** materials adsorb CO and O at room temperature and catalyze ethene hydrogenation and ethane **hydrogenolysis** under mild conditions. The activities of these 3 catalysts are related to the extent of electron transfer in the support-cluster interactions; the latter are deduced from the positions of a band in the IR spectra attributed to CO bonded to Os in a neg. formal oxidation state.

L3 ANSWER 13 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1985:601565 CAPLUS
DOCUMENT NUMBER: 103:201565
TITLE: Study of the interaction between metal rhodium and silica support
AUTHOR(S): Zhong, Shunhe; Haller, G. L.
CORPORATE SOURCE: Dep. Chem. Eng., Tianjin Univ., Tianjin, Peop. Rep. China
SOURCE: Tianjin Daxue Xuebao (1985), (3), 101-13
CODEN: TCHHA9; ISSN: 0493-2137
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The strong interaction between Rh and the SiO2 support was studied. The standard Rh catalyst (3% Rh/SiO2) was extracted with HCl. Atomic absorption studies indicate that .apprx.98% of the Rh is removed. The remaining Rh can still chemisorb H and the ratio H/Rh is >1. This Rh only weakly chemisorbs CO and the IR spectrum shows that only linear Rh-CO is formed. The **activation** energy for ethane **hydrogenolysis** and butane **hydrogenolysis** on this catalyst is only 30 and 18 kcal/mol, resp., which are .apprx.50% less than on the standard Rh/SiO2 catalyst.

L3 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1985:155530 CAPLUS
DOCUMENT NUMBER: 102:155530
TITLE: **Hydrogenolysis** of n-butane and hydrogenation of carbon monoxide on nickel and cobalt catalysts supported on Saran carbons
AUTHOR(S): Fernandez-Morales, I.; Guerrero-Ruiz, A.; Lopez-Garzon, F. J.; Rodriguez-Ramos, I.; Moreno-Castilla, C.
CORPORATE SOURCE: Fac. Cienc., Univ. Granada, Granada, 18071, Spain
SOURCE: Applied Catalysis (1985), 14(1-3), 159-72
CODEN: APCADI; ISSN: 0166-9834
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Ni and Co catalysts were supported on Saran carbons and characterized by CO and H2 chemisorption and x-ray diffraction. For Ni catalysts, the mean particle size (d) determined by XRD agrees very well with those obtained from a CO/M2 ratio of 3, and also with those obtained from H2 chemisorption, except in one case. For Co catalysts, H chemisorption seems to be an **activated** process depending on adsorption temperature. **Hydrogenolysis** of butane on Ni catalysts is a demanding reaction since the turnover frequency changes with the dispersion of the catalyst. However, this is not the case for Co catalysts, in both series of catalysts, the degree of **hydrogenolysis** decreases when increasing the dispersion of the metal. Hydrogenation of CO is not a demanding reaction either for Ni or Co catalysts in the dispersion range

studied. CH₄ is the main product obtained and its production increases when the metals are supported. The formation of olefins is suppressed in the supported Co catalysts as compared with the bulk.

L3 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1980:197599 CAPLUS

DOCUMENT NUMBER: 92:197599

TITLE: Methanation reaction on ruthenium thin films: a mechanistic investigation

AUTHOR(S): Slaughter, M. D.

CORPORATE SOURCE: Ames Lab., Ames, IA, USA

SOURCE: Report (1979), IS-T-871, 186 pp. Avail.: NTIS

From: Energy Res. Abstr. 1979, 4(22), Abstr. No. 52455

DOCUMENT TYPE: Report

LANGUAGE: English

AB The kinetics of the methanation reaction were measured on thin Ru at 548-623K. The pressures of the reactant gases were 1.5-1500 μ m for CO and 300-75000 μ m for H₂ to yield kinetics orders for each gas. The CO kinetics order varied from +1 at low pressures to -2 at high pressures. As the H₂ pressure was increased its kinetics order varied from +2 to -1. Both of these order plots had unusually sharp maximum. The reaction is zero order in both CH₄ and H₂O. The apparent **activation** energy was dependent upon temperature. Auger spectroscopy and XPS (XPS) indicated that the surface was always covered with C which was divided into 2 types based upon its reactivity toward H₂. Type-1 was very reactive to 3.5 torr H₂ doses at 573K and was completely removed in <300 s. Type-2 was less reactive and required .apprx.48 h under the same conditions for removal. No O was ever detected on the surface after methanation. LEED and XPS indicated resp., that neither graphite nor bulk carbide was associated with the used catalyst. The deposition of ≤ 0.75 monolayer of C enhanced the rate of methanation. More C caused a drop in the initial rate. MeOH was hydrogenated to CH₄ at about the same rate as CO. A mechanism was developed which quant. fits the kinetics data and qual. predicts all of the other observations. This mechanism involves adsorbed H₂ interacting with nondissocd. CO. The rate limiting step involves the interaction of Ru-H and Ru-Me to form CH₄. A methylene carbonyl hydride acts as a reversible poison at high H₂-CO ratios.

```
=> s activat? (2a) slurry
    1180818 ACTIVAT?
    89419 SLURRY
    26624 SLURRIES
    98780 SLURRY
        (SLURRY OR SLURRIES)
L4      466 ACTIVAT? (2A) SLURRY

=> s 14 and reduc? gas (1) hydrogen (1) carbon monoxide
    1923320 REDUC?
    845104 REDN
    45976 REDNS
    873948 REDN
        (REDN OR REDNS)
    2404707 REDUC?
        (REDUC? OR REDN)
    1416120 GAS
    484983 GASES
    1589628 GAS
        (GAS OR GASES)
    9892 REDUC? GAS
        (REDUC? (W) GAS)
    862250 HYDROGEN
    5533 HYDROGENS
    865359 HYDROGEN
        (HYDROGEN OR HYDROGENS)
    1110332 CARBON
    24692 CARBONS
    1119341 CARBON
        (CARBON OR CARBONS)
    165237 MONOXIDE
    970 MONOXIDES
    165751 MONOXIDE
        (MONOXIDE OR MONOXIDES)
    139793 CARBON MONOXIDE
        (CARBON (W) MONOXIDE)
    160 REDUC? GAS (L) HYDROGEN (L) CARBON MONOXIDE
L5      0 L4 AND REDUC? GAS (L) HYDROGEN (L) CARBON MONOXIDE
```

```
=> s 14 and reduc? gas
    1923320 REDUC?
    845104 REDN
    45976 REDNS
    873948 REDN
        (REDN OR REDNS)
    2404707 REDUC?
        (REDUC? OR REDN)
    1416120 GAS
    484983 GASES
    1589628 GAS
        (GAS OR GASES)
    9892 REDUC? GAS
        (REDUC? (W) GAS)
L6      1 L4 AND REDUC? GAS
```

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=> d 16 ibib ab
```

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L6  ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:362914  CAPLUS
DOCUMENT NUMBER: 125:13726
TITLE: In-situ activation of methanol synthesis catalyst in a
three-phase slurry reactor
AUTHOR(S): Vijayaraghavan, P.; Lee, Sunggyu
CORPORATE SOURCE: Dep. Chemical Engineering, Univ. Akron, Akron, OH,
44325-3906, USA
SOURCE: Fuel Science & Technology International (1996), 14(6),
729-738
```

PUBLISHER: Dekker
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In the liquid phase methanol synthesis process, synthesis gas reacts in the presence of fine catalyst particles slurried in the oil phase, in a three phase slurry reactor system. A method for activating high concentration (>25 weight %) of the CuO-ZnO-Al₂O₃ catalyst in the catalyst-oil slurry has been developed. This catalyst activation process can be of crucial significance in the research and development of the methanol synthesis process in a liquid entrained reactor. The **reducing gas** contains 2% hydrogen in nitrogen mixture and this activation procedure is carried out at a pressure of 125 psi. The catalyst-oil slurry is subjected to a controlled temperature ramping from 110° to 250°C. Since the reduction is carried out in the process liquid medium and inside the reactor system, the catalyst-oil slurry after the treatment is ready for the synthesis of methanol.

=> s deactivat? (1a) slurry (l) reduc? gas

37965 DEACTIVAT?

89419 SLURRY

26624 SLURRIES

98780 SLURRY

(SLURRY OR SLURRIES)

1923320 REDUC?

845104 REDN

45976 REDNS

873948 REDN

(REDN OR REDNS)

2404707 REDUC?

(REDUC? OR REDN)

1416120 GAS

484983 GASES

1589628 GAS

(GAS OR GASES)

9892 REDUC? GAS

(REDUC? (W) GAS)

L7 0 DEACTIVAT? (1A) SLURRY (L) REDUC? GAS

=> s regenerat? (3a) fischer tropsch

164966 REGENERAT?

22466 FISCHER

15 FISCHERS

22478 FISCHER

(FISCHER OR FISCHERS)

7380 TROPSCH

7287 FISCHER TROPSCH

(FISCHER (W) TROPSCH)

L8 50 REGENERAT? (3A) FISCHER TROPSCH

=> s l8 and hydrogen (5a) carbon monoxide

862250 HYDROGEN

5533 HYDROGENS

865359 HYDROGEN

(HYDROGEN OR HYDROGENS)

1110332 CARBON

24692 CARBONS

1119341 CARBON

(CARBON OR CARBONS)

165237 MONOXIDE

970 MONOXIDES

165751 MONOXIDE

(MONOXIDE OR MONOXIDES)

139793 CARBON MONOXIDE

(CARBON (W) MONOXIDE)

12160 HYDROGEN (5A) CARBON MONOXIDE

L9 3 L8 AND HYDROGEN (5A) CARBON MONOXIDE

=> d 19 ibib ab 1-3

L9 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:759844 CAPLUS
DOCUMENT NUMBER: 141:279434
TITLE: Hydrogen use in a gas-to-liquid plant
INVENTOR(S): Espinoza, Rafael L.; Mohedas, Sergio R.; Goodwin, Ralph T.; Landis, Stephen R.; Belt, Barbara A.
PATENT ASSIGNEE(S): ConocoPhillips Company, USA
SOURCE: U.S. Pat. Appl. Publ., 10 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004180974	A1	20040916	US 2003-388905	20030315
WO 2004083344	A1	20040930	WO 2004-US7914	20040315
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			

PRIORITY APPLN. INFO.: US 2003-388905 A 20030315

AB The present invention provides a process for managing hydrogen in a hydrocarbon gas-to-liquid plant. The process includes passing a synthesis gas feed stream produced by a partial oxidation reactor to a Fischer-Tropsch reactor, thereby converting the synthesis gas into hydrocarbon liqs. The hydrogen management process further includes passing a second hydrogen-rich stream produced by an auxiliary source to a hydrogen user such as an Fischer-Tropsch water stripper, an **Fischer-Tropsch** catalyst **regeneration** unit, and a **Fischer-Tropsch** product upgrading unit. The auxiliary source could be a process for converting hydrocarbons to synthesis gas, a process for converting hydrocarbons to olefins, a process for converting hydrocarbons to aroms., a process for catalytically dehydrogenating hydrocarbons, a process for catalytically cracking hydrocarbons, a process for refining petroleum, and a process for converting hydrocarbons to carbon filaments.

L9 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:978458 CAPLUS
DOCUMENT NUMBER: 138:41011
TITLE: Pressure-swing catalyst regeneration procedure for activating deactivated Fischer-Tropsch catalysts
INVENTOR(S): Wright, Harold A.; Raje, Ajoy P.; Espinoza, Rafael L.
PATENT ASSIGNEE(S): Conoco Inc., USA; Conocophillips Company
SOURCE: U.S. Pat. Appl. Publ., 13 pp., Cont.-in-part of U.S. Ser. No. 713,051.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002198096	A1	20021226	US 2002-150324	20020516
US 6869978	B2	20050322		

US 6486220	B1	20021126	US 2000-713051	20001115
ZA 2002003621	A	20030507	ZA 2002-3621	20020507
PRIORITY APPLN. INFO.:			US 1999-166020P	P 19991117
			US 2000-713051	A2 20001115
			US 2001-291924P	P 20010517

AB A process is described for regenerating a catalyst used in a process for synthesizing hydrocarbons. The synthesis process involves contacting a feed stream comprising **hydrogen** and **carbon monoxide** with a catalyst in a reaction zone maintained at conversion-promoting conditions effective to produce an effluent stream comprising hydrocarbons. The regeneration process involves contacting a deactivated **Fischer-Tropsch** catalyst with a **regeneration** gas under regeneration-promoting conditions that include a pressure lower than the mean Fischer-Tropsch reaction pressure, for a period of time sufficient to reactivate the Fischer-Tropsch catalyst.

L9 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1993:605873 CAPLUS
DOCUMENT NUMBER: 119:205873
TITLE: Activation of a Fischer-Tropsch catalyst
INVENTOR(S): Eilers, Jacobus; Tijm, Petrus Jacobus Adrianus
PATENT ASSIGNEE(S): Shell Internationale Research Maatschappij B. V., Neth.
SOURCE: Brit. UK Pat. Appl., 33 pp.
CODEN: BAXXDU
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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GB 2258826	A1	19930224	GB 1991-17898	19910820
PRIORITY APPLN. INFO.:			GB 1991-17898	19910820
AB A title catalyst, such as alumina, silica and/or titania, can be activated a number of times by (1) reduction of the catalyst with a H-containing gas, (2) oxidation with an O-containing gas, and (3) reduction with a H-containing gas; in a short synthesis stage (relative to the time to deactivate the catalyst), between (1) and (3), the catalyst is contacted at elevated temperature and pressure with a CO/H mixture to form liquid hydrocarbons. Thus, in an example, a catalyst was prepared from SiO ₂ , ammonium zirconium carbonate, and Co nitrate, activated with H ₂ and O ₂ , and then contacted with 1:1 CO/H ₂ mixture at 25 bar at gas hourly space velocity 800 NL/L/h; feeding a synthesis gas at 208.8° gave 90.2 wt% C ₅ + hydrocarbon selectivity in 25 min.				

=>

WEST Search History

DATE: Thursday, March 31, 2005

Hide?	Set Name	Query	Hit Count
	<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L16	L15 not l2	4
<input type="checkbox"/>	L15	regenerat\$3 with fischer tropsch catalyst with hydrogen with carbon monoxide	4
<input type="checkbox"/>	L14	L13 not l2	0
<input type="checkbox"/>	L13	decreas\$3 near2 hydrogenolysis same reduc\$3 gas same hydrogen with carbon monoxide	1
<input type="checkbox"/>	L12	L11 not l2	4
<input type="checkbox"/>	L11	(deactiv\$4 near2 slurry or deactiv\$4 near2 catalyst) with reducing gas with hydrogen with carbon monoxide	4
<input type="checkbox"/>	L10	(deactivated slurry or deactivated catalyst) with reducing gas with hydrogen with carbon monoxide	0
<input type="checkbox"/>	L9	L8 not l2	6
<input type="checkbox"/>	L8	L7 and reducing gas	6
<input type="checkbox"/>	L7	(hydrogenolysis).ti.	593
	<i>DB=EPAB; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L6	WO-2004026796-A2.did.	1
<input type="checkbox"/>	L5	WO-2004026796-A2.did.	1
	<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L4	L3 not l2	9
<input type="checkbox"/>	L3	l1 and (oxidiz\$3 metal or oxidiz\$3 catalyst)	10
<input type="checkbox"/>	L2	L1 and reduc\$3 gas with hydrogen with carbon monoxide	4
<input type="checkbox"/>	L1	HYDROGENOLYSIS and fischer tropsch	215

END OF SEARCH HISTORY